

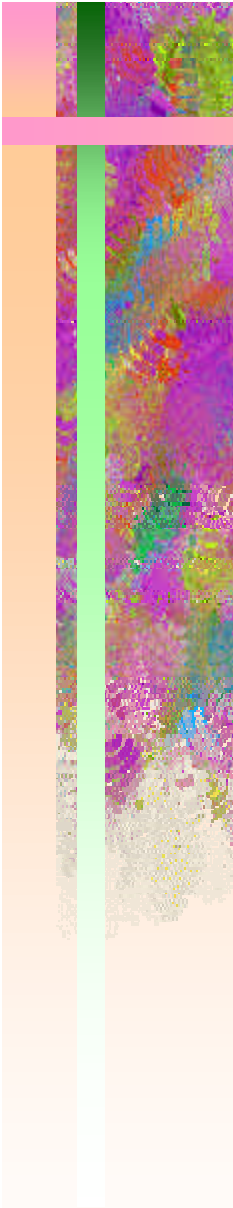


With Upgraded USTs, Are We Still Concerned About Groundwater?

Yes

**Workshop on Increased Use of Ethanol
and Alkylates in Automotive Fuels in
California**

April 10 & 11, 2001



California's UST Program

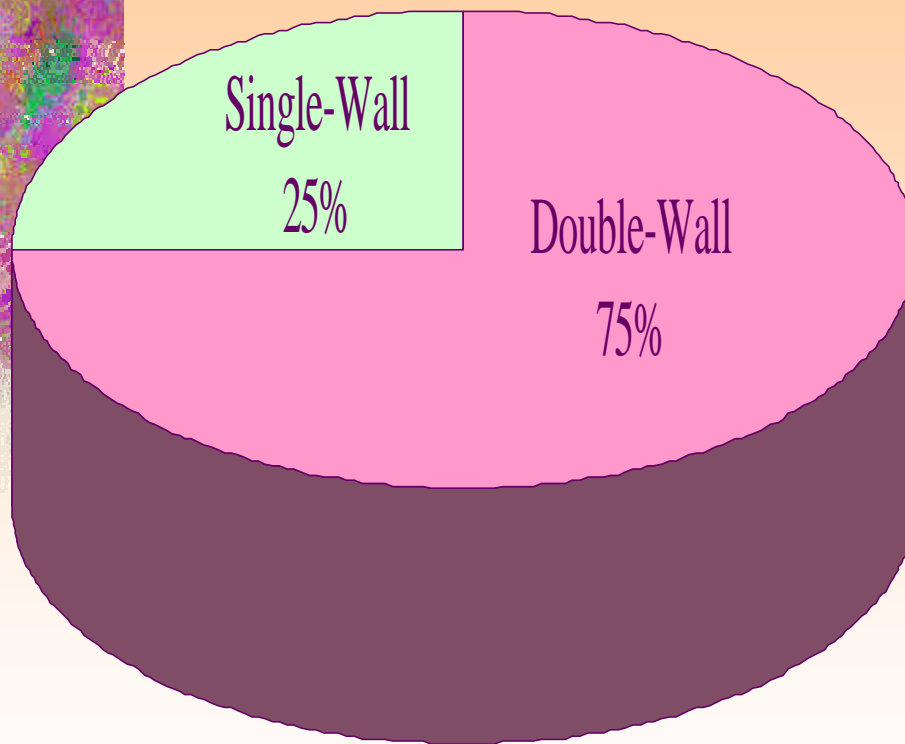
- State law and federal regulations required all operating USTs to be upgraded or replaced by 12/22/98.
- It is 2+ years later.
- Are we still concerned about leaking underground fuel tanks?



Upgraded vs. Replaced

- An “upgraded” system has single-wall components.
- “Replaced” systems in California must have secondary containment.
- There are >2,300 single-wall systems within 1,000 feet of a public drinking water well.

Estimated Breakdown of UST Tanks in California

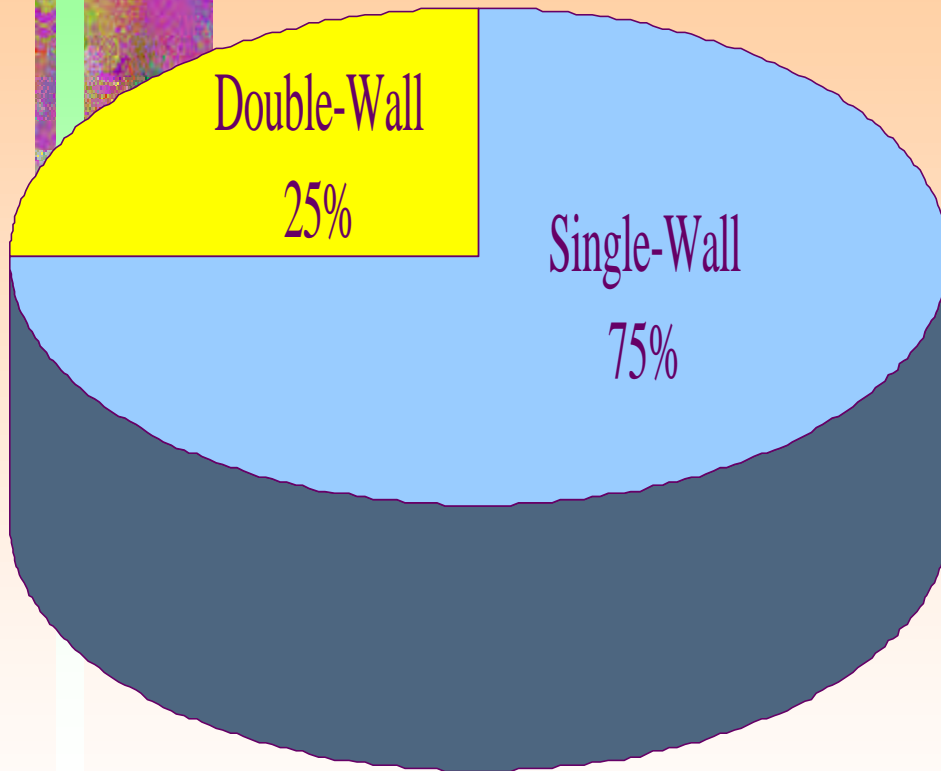


- Approximately 49,000 active USTs in California

✍ 12,000 sw USTs

✍ 37,000 dw USTs

Estimated Breakdown of UST Systems in USA



- Approximately 743,000 active UST systems in USA
 - ✍ 186,000 dw systems
 - ✍ 557,000 sw systems



Upgraded Systems Violations

- Turbine sumps not liquid tight
- Sensors in turbines raised
- Mechanical float (bead chain) set incorrectly
- Mechanical line leak detectors on S/W piping
- ? Numerous small leaks found at turbine and dispenser ends
- ? Systems operating in an alarm condition for extended periods
- ? Unprotected steel piping/fittings



Pipe dreams

- Single-wall steel piping can have cathodic protection added, but what was the condition of the piping?
- A reportable leak rate is over 0.1 gph for a once a year test. The leak rate for line leak detectors is 3 gph.
- Do the math.
- What really is buried?









Replaced System Problems

- Are they really liquid tight?
- Are they vapor tight?



Legislature to the Rescue: SB 989 (1999, Sher)

- Field-Based Research
- Enhanced Leak Detection
- Secondary Containment Testing



Field-Based Research

- Quantify releases from upgraded and replaced UST systems
- Complete by June, 2002
- Contractor: UC Davis
- Relies on methodology used by Tracer Research, Inc.



Enhanced Leak Detection

- Applies to single-wall systems within 1,000 feet of a public drinking water well.
- Test method introduces an inert nonfuel substance into UST system with external detection.
- Leak rate detection at 0.005gph.
- Conduct every three years.



Secondary Containment Testing

- Test every three years.
- Must perform as well as it did upon installation.
- Can use enhanced leak detection.
- If cannot be tested, must be replaced.



Likely Findings

- Some liquid releases
- Many vapor releases



Commandment for Groundwater Protection

- Thou shalt neither discharge nor release any substance to the ground which is water soluble and resistant to biodegradation and would impart toxicity, taste, or odor at low concentrations in water.



Constituents of Concern?

- Salts
- Nitrates
- DBCP
- Solvents
- Benzene
- MTBE/Ethers
- Ethanol
- Alkylates



Commandment for Groundwater Protection

- Thou shalt neither discharge nor release any substance to the ground which is water soluble OR HAS A SPECIFIC GRAVITY GREATER THAN WATER and resistant to biodegradation and would impart toxicity, taste, or odor at low concentrations in water.